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PROCEEDINGS OF SCIENTIFIC SOCIETIES.

American Association for the Advancement of Science.—The 38th meeting of the A. A. A. S. was held at Toronto, Ontario, from August 17th to September 3d, 1889. There were 421 members registered; 190 new members were elected; and 72 names were added to the list of fellows. The meeting was remarkable for the number of Past Presidents in attendance, these embracing Professors Dana, Hall, Newberry, Barker, Dawson, Newton and Morse. The retiring President, Major J. W. Powell, was absent, and his address upon "The Evolution of Music" was read on Wednesday evening, August 28th, by Mr. G. K. Gilbert, of the U. S. Geological Survey. The vice-presidents were all on hand except Prof. Arthur Beardsley, of Section D, and the Secretary of that section, James D. Denton, was elected to preside in his stead. The subjects of the vice-presidents' addresses were as follows:

Section A.—Mathematics and Astronomy:—"Mathematical Theories of the Earth," by R. D. Woodward.

Section B.—Physics:—"A Review of Theories of Electrical Action," by H. S. Carhart.

Section C.—Chemistry:—"The Nature of Amalgams," by William L. Dudley.

Section E.—Geology and Geography:—"The North American Mesozoic," by Chas. A. White.

Section F.—Biology:—"The Protoplasm of Organisms," by George L. Goodale.

Section H.—Anthropology:—"The Israelites and the Indians," by Garrick Mallery.

Section I.—Economic Science and Statistics:—"Economic and Sociologic relations of Canada and the United States, prospectively considered," by Chas. S. Hill.

Of these addresses, that of the vice-president of Section I received an extended notice by the Toronto *Mail.* The editor naturally disagreed with Prof. Hill on many points, more especially in regard to the effect of protection on the cost of manufactured goods. The following is a list of the papers entered to be read before the various sections. Some were only read by title because of the absence of the authors.

SECTION A.

The New Dearborn Observatory.—10 min.—By G. W. Hough.

Astronomical Observations made with the Great Telescope of the Lick Observatory since June, 1888.—25 min.—By Edward S. Holden.

A Desideratum in the Presentation of Mathematical Truth.—5 min. —By Charles H. Chandler.

Automatic Photographic Transits.—15 min.—By Frank H. Bigelow.

A Method of Finding Factors.—10 min.—By James D. Warner.

On the Graduation of Meridian Circles *in situ*.—10 min.—By Wm. A. Rogers.

On the Use of a Floating Mirror as an Auxiliary to a Meridian Circle.—12 min.—By G. C. Comstock.

The Relation Between Stellar Magnitudes, Distances, and Motions, —15 min.—By J. R. Eastman.

On the Proper Motions of the Stars in the Harvard College Observatory Zone, between the limits 50° and 55° Declination.—8 min.—By Wm. A. Rogers.

Formula for the Probability of any Fact or Occurrence about which any Number of Witnesses Testify.—10 min.—By J. E. Hendrick.

On the Solar Parallax and its related Constants.—30 min.—By Wm. Harkness.

Double Star Discoveries and Measures made at the Lick Observatory, August 1st, 1888, to August 1st, 1889.—10 min.—By D. W. Burnham.

A proposed Catalogue of Declinations.—45 min.—By Henry Farquhar.

The Solar Corona, a phenomenon in Spherical Harmonics.—5 min. —By Frank H. Bigelow.

On the Automatic Eclipsograph.—15 min.—By David P. Todd.

Errors in Star Catalogues.—15 min.—By E. Frisby.

The Peruvian Arc.—30 min.—By E. D. Preston.

New Arrangement for an Astigmatic Eye-piece.—3 min.—By J. A. Brashear.

The Jena Optical Glass.—5 min.—By J. A. Brashear.

The Centrifugal Catenary.—15 min.—By J. Burkitt Webb.

The Polar Tractrix.—10 min.—By J. Burkitt Webb.

A Precession Model.—10 min.—By J. Burkitt Webb.

The Hastings Achromatic Objective.—5 min.—By J. A. Brashear.

Annual Parallax of South 503.—4 min.—By F. P. Leavenworth.

SECTION B.

Exhibition of a new Spectroscope Slit.—3 min.—By Romyn Hitchcock.

Exhibition of a Thermometer with constant Zero Point.—3 min.—By Romyn Hitchcock.

The Measurement of Magnification in the Microscope.—15 min.—By W. Le Conte Stephens.

Concerning Thermometers.—20 min.—By Wm. A. Rogers and R. S. Woodward.

Experimental Proof of Newton's Law of Cooling.—8 min.—By Wm. A. Rogers.

On the Partition of the Mean Kinetic Energy of a perfect gas between the rotary and translatory motions of its molecules.—8 min.—By H. T. Eddy.

Note on the Magnetic Rotation of Polarized Light according to the Electro-magnetic Theory.—10 min.—By H. T. Eddy.

Researches on Sonorus Sand in the Peninsula of Sinai (with lantern views).—By H. Carrington Bolton.

Relative Merits of Dynamometric and Magnetic Methods of Obtaining Absolute Measurements of Electric Currents.—30 min.—by Thos. Gray.

A Quadrant Electrometer.—5 min.—By Harris J. Ryan.

Magnetic Leakage in Dynamos.—10 min.—by H. S. Carhart.

An Improved Standard Clark Cell with Low Temperature Co-efficient.—15 min.—By H. S. Carhart.

On Globular Lightning.—By T. C. Mendenhall.

A Preliminary Report on the Influence of Temperature upon the Color of Pigments.—15 min.—By Edward L. Nichols and B. W. Snow.

The Solar Condition upon which the Aurora Depends.—5 min.—By M. A. Veeder.

The Determination of the Amount of Rainfall.—12 min.—By Cleveland Abbe.

The Hydro-Electric Effect of Stretching Metals.—15 min.—By Carl Barus.

Additional Experimental Proof of the Constancy of the Relative Co-efficients of Expansion between Jessop's Steel and Bronze, between the limits of minus 5° and 95° Fahr.—5 min.—By Wm. A. Rogers.

Experiments in Duplex Telephony in 1883.—5 min.—By A. M. Roseburgh.

Recent Progress in Storage Batteries.—10 min.—By George F. Barker.

A Mode of Suspension for Foucault's Pendulum.—5 min.—By R. B. Fulton.

A Modification of the "Pascal's Vase" Experiment.—3 min.—By A. L. Arey.

Experiments for Demonstrating that the force of a Detonating Explosion is exerted in all directions about the explosive center.—5 min. —By C. E. Monroe.

Effects of Electrostatic Discharges on Photographic Plates.—10 min.—By Thomas French, Jr.

A Mountain Study of the Spectrum of Aqueous Vapor.—25 min.—By Charles S. Cook.

An Exhibition of Photographs, taken in 1864, of the Living Eye (*a*) The retinal vessels; (*b*) The retinal inverted image of an object placed in front of the eye.—8 min.—By A. M. Roseburgh.

An Exhibition of Photographs of the Fundus of the Eye of the Cat taken while under the influence of Chloroform.—5 min.—By A. M. Roseburgh.

Experimental Determination of the Periodic Pulsations of a Thermometer made of the new "Jena" glass.—By Wm. A. Rogers and J. B. Webb.

SECTION C.

Dynamical Theory of Albuminoid Ammonia.—50 min.—By Robert B. Warder.

Molugrams and Molugram Liters.—2 min.—By Chas. E. Monroe.

The Explosiveness of the Celluloids.—10 min.—By Chas. E. Monroe.

The Chemical Composition of the Mica Group.—40 min.—By F. W. Clarke.

Spectrum Photography.—40 min.—By R. Hitchcock.

New Bottle for Hydrofluoric Acid.—5 min.—By Edward Hart.

Some Peculiarities of Butter.—20 min.—By H. W. Wiley.

Composition of the Seed of *Calicanthus glaucus* (Illustrated).—20 min.—H. W. Wiley.

The Action of Light on Silver Chloride.—10 min.—R. Hitchcock.

A Method of Mounting Photographic Prints on Paper.—5 min.—R. Hitchcock.

Some Notes on the Estimation of Nitrogen by the Kjeldahl Method. —10 min.—M. A. Scovell.

Succinylo-succinic Acid.—15 min.—Adolph Bayer, Munich, Germany, and A. W. Noyes.

Estimation of Bromine in Presence of Chlorine.—10 min.—Albert B. Prescott.

On the Acquisition of Atmospheric Nitrogen by Plants.—20 min.—W. O. Atwater.

Discussion of the Report of Committee on the Formation of a National Chemical Society.

Food Preparation.—10 min.—By Fred. Hoffman.

The Composition of Ontario Oats.—10 min.—By C. C. James.

Jadeite and Nephrite.—15 min.—By L. P. Kinnicutt.

Continuation of the Discussion upon the Report of the Committee upon the Spelling and Pronunciation of Chemical Terms.

SECTION D.

Results of Recent Experiments to Determine the Resistance of Air to Inclined Planes in Motion, with applications to the problems of Soaring Pigeons.—20 min.—By O. Chanute.

Experimental Comparison of the Performance of Steam Injectors *vs.* a Duplex Steam Pump.—35 min.—By E. B. Perry.

On the Preservation of Timber.—15 min.—By O. Chanute.

On the Relative Economy of Modern Air Compressors. Illustrations by Lantern.—40 min.—By J. E. Denton.

Note on Performance of a Pumping Engine.—10 min.—By M. E. Cooley.

New Device for Autographic Registry of Extension in Tension Tests.—15 min.—By Thos. Gray.

Notes on Anti-friction Construction for Revolving Mechanism for Observatory Domes.—10 min.—By W. R. Warner.

Note on Performance of a Vibrating Piston Engine.—10 min.—By M. E. Cooley.

Probable Principal Cause of Superior Economy of Multiple Expansion Engines.—10 min.—By J. E. Denton.

Exhibition of a Novel Motor.

SECTION E.

Topographic Types of Northeastern Iowa.—25 min.—By W. J. McGee.

The Lake Ridges of Ohio and their Probable Relations to the Lines of Glacial Drainage into the Valley of the Susquehanna.—30 min.—By G. F. Wright.

The Moraines of the Wabash-Erie region. The Irondequoit Glacier.—15 min.—By C. R. Dryer.

Glacial Phenomena of Northern Indiana and Northeastern Illinois.—20 min.—By Frank Leverett.

The Attractive Scenery of our own Land.—20 min.—By A. S. Bickmore.

The Mastodon of Kent and What We Know About It.—20 min.—By Ed. Jones, Esq.

On Certain Remarkable New Fossil Plants from the Erian and Carboniferous, and on the Characters and Affinities of the Paleozoic Gymnosperms.—20 min.—By Sir Wm. Dawson.

Mammoth Cave.—20 min.—By H. C. Hovey.

The Devonian System of North and South Devonshire.—25 min.—By H. S. Williams.

A Classification of the Topographic and Geologic Features of Texas, with remarks upon the Areal Distribution of the Geologic Formations.—20 min.—By R. T. Hill.

The Eagle Flats—Formation and the Basins of the Trans-Pecos or Mountaincus Region of Texas.—5 min.—By R. T. Hill.

The Ancient Volcanoes of Central Texas.—5 min.—R. T. Hill and E. T. Dumble.

The Geology of the Staked Plains of Texas, with a Description of the Staked Plains Formation.—5 min.—By R. T. Hill.

The Geology of the Valley of the Upper Canadian from Tascosa, Texas, to the Tucumcari Mountains, New Mexico, with notes on the age of the same.—10 min.—By R. T. Hill.

The Reality of a Level of no Strain in the Crust of the Earth.—30 min.—By E. W. Claypole.

The Geological Position of the Ogishke Conglomerate.—30 min.—By Alexander Winchell.

The Origin of Gneiss and other Primitive Rocks.—15 min.—By Robert Bell.

Observations on the Trap Ridges of the East Haven (Conn.) Region.—30 min.—By E. O. Hovey.

On a Possible Chemical Origin of the Iron Ores of the Kewatin in Minnesota.—20 min.—By N. H. Winchell and H. V. Winchell.

Notice of some Zircon Rocks in the Archæan Highlands of New Jersey.—8 min.—By F. L. Nason and W. F. Ferrier.

Trap Dykes in the Region about Lake Champlain and the Adirondacks.—10 min.—By J. F. Kemp.

Field Studies of Hornblende Schist.—10 min.—By C. H. Hitchcock.

Remarks on the Cretaceous of Northern Mexico.—10 min.—By C. A. White.

Notes on the Mapping of the Archæan Northwest of Lake Superior.—10 min.—By A. C. Lawson.

On the Structural and Chemical Differentiation of certain Dykes of the Rainy Lake Region.—20 min.—By A. C. Lawson.

Natural Gas in Fredonia, New York.—15 min.—By H. T. Fuller.

The Petroleum Belt of the Terre Haute.—10 min.—By C. A. Waldo.

Preservation of Glaciated Rocks in Worcester, Mass.—5 min.—By H. T. Fuller.

Two New Faunas from the Lower Cretaceous Formation of Texas; (*a*) Caprina Limestone Fauna. (*b*) The Shoal Creek Limestone.—5 min.—By R. T. Hill.

On the Origin of Diagonal Trends in the Earth's Crust.—15 min.—By D. S. Martin.

Casts of Scolithus Flattened by Pressure.—5 min.—By A. Wanner.

Origin of Boulder Pavements and Fringes.—10 min.—By J. W. Spencer.

Section of the Makoqueta Shales in Iowa.—10 min.—By J. F. James.

History of the Formation of the Great Lakes.—20 min.—By J. S. Newberry.

SECTION F.

On the Position of the Nectar Glands in Echinops.—5 min.—By Thomas Meehan.

On the Epigynous Gland in Diervilla and the Genesis of Lonicera and Diervilla.—10 min.—By Thomas Meehan.

On the Conditions of Molluscan Life in the Deep Sea.—30 min.—By W. H. Dall.

Some Peculiarities of the Antennal Structure in the Deltoids.—10 min.—By John B. Smith.

History and Migration of the American Crow in Nebraska.—10 min.—By W. Edgar Taylor.